**3GPP TSG-CT WG1 Meeting #133-bis-e *Rev\_*C1-220272**

**E-meeting, 17-21 January 2022**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **27.007** | **CR** | **0759** | **rev** | **1** | **Current version:** | **17.4.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | AT Command for MUSIM Paging Timing Collision Control | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Apple | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | MUSIM | | | | |  | ***Date:*** | | | 2022/01/08 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) ... Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | A MUSIM capable UE can conrol paging timing collision. There needs to be an AT command so that the TE can indicate the requested IMSI Offset to the MT and the MT can notify the negotiated IMSI offset and GUTI to the TE. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Define a new AT command +CPAGTCC for paging timing collision control. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Missing stage-3 functionality for paging timing collision control. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 10.1.X (New Clause), Annex B | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\*\*\* Next change \*\*\*

### 10.1.X Paging timing collision control +CPAGTCC

Table 10.1.X-1: +CPAGTCC parameter command syntax

|  |  |
| --- | --- |
| Command | Possible response(s) |
| +CPAGTCC=<n>[,<IMSI\_offset>] | *+CME ERROR: <err>* |
| +CPAGTCC? | +CPAGTCC: <n>,<mobile\_identity> [,<IMSI\_offset>] |
| +CPAGTCC=? | +CPAGTCC: (list of supported <n>s),(list of supported <mobile\_identity>s),(list of supported <IMSI\_offset>s) |

**Description**

The set command controls the presentation of unsolicited result code +CPAGTCC: <mobile\_identity>[,<IMSI\_offset>] when <n>=1 reporting the mobile identity of the UE and the negotiated alternative IMSI value offset that have been specified by the network for a MUSIM capable UE that supports paging timing collision control. When <n>=2, a special form of the set command enables the MUSIM capable UE to specify the requested alternative IMSI offset value to the network for 3GPP access in EPS (see 3GPP TS 24.301 [83], clause 5.5.1.2 and clause 5.5.3.2).

Refer clause 9.2 for possible <err> values.

The read command returns the current settings of <n>, <mobile\_identity> and <IMSI\_offset>.

The test command returns values supported as a compound value.

**Defined values**

<n>: integer type

0 Disable presentation of unsolicited result code +CPAGTCC: <mobile\_identity>[,<IMSI\_offset>]

1 Enable presentation of unsolicited result code +CPAGTCC: <mobile\_identity>[,<IMSI\_offset>]

2 Specify the requested IMSI offset <IMSI\_offset> to the network in case of EPS. There will be no change in the current setting of <n>, enabling or disabling of unsolicited result code +CPAGTCC: <mobile\_identity>[,<IMSI\_offset>]

<mobile\_identity>: indicates the mobile identity information of the UE in EPS (see 3GPP TS 24.301 [83], clause 9.9.3.12) and 5GS (see 3GPP TS 24.501 [161], clause 9.11.3.4).

<IMSI\_offset>: indicates a value that is used for calculating an alternative IMSI offset value that is used for deriving the paging occasion (see 3GPP TS 24.301 [83], clause 9.9.3.64).

**Implementation**

Optional.

\*\*\* Next change \*\*\*

Annex B (normative):  
Summary of result codes

ITU‑T Recommendation V.250 [14] result codes which can be used in the present document and result codes defined in the present document:

Table B.1: Result codes

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Verbose result code  (V.250 command V1 set) | | Numeric  (V0 set) | | Type | | Description | |
| +C5GPDUAUTHU | | as verbose | | unsolicited | | refer clause 10.1.73 | |
| +C5GUSMS | | as verbose | | unsolicited | | refer clause 10.1.59 | |
| +CABTSRI | | as verbose | | unsolicited | | refer clause 10.1.41 | |
| +CACSP | | as verbose | | unsolicited | | refer clause 11.1.7 | |
| +CALV | | as verbose | | unsolicited | | refer clause 8.16 | |
| +CANCHEV | | as verbose | | unsolicited | | refer clause 11.1.8 | |
| +CAPPLEVMC | | as verbose | | unsolicited | | refer clause 8.78 | |
| +CAPTT | | as verbose | | unsolicited | | refer clause 11.1.4 | |
| +CAULEV | | as verbose | | unsolicited | | refer clause 11.1.5 | |
| +CBCAP | | as verbose | | unsolicited | | refer clause 8.59 | |
| +CBCHG | | as verbose | | unsolicited | | refer clause 8.61 | |
| +CBCON | | as verbose | | unsolicited | | refer clause 8.60 | |
| +CCCM | | as verbose | | unsolicited | | refer clause 7.16 | |
| +CCSFBU | | as verbose | | unsolicited | | refer clause 8.76 | |
| +CCSTATEREQU | | as verbose | | unsolicited | | refer clause 10.1.72 | |
| +CCWA | | as verbose | | unsolicited | | refer clause 7.12 | |
| +CCWV | | as verbose | | unsolicited | | refer clause 8.28 | |
| +CDEV | | as verbose | | unsolicited | | refer clause 8.10 | |
| +CDIP | | as verbose | | unsolicited | | refer clause 7.9 | |
| +CDUT | | as verbose | | intermediate | | refer clause 13.2.1 | |
| +CDUU | | as verbose | | unsolicited | | refer clause 13.2.1 | |
| +CECN | | as verbose | | unsolicited | | refer clause 6.28 | |
| +CEDRXSP | | as verbose | | unsolicited | | refer clause 7.40 | |
| +CEMBMSRI | | as verbose | | unsolicited | | refer clause 14.2.2 | |
| +CEMBMSSAII | | as verbose | | unsolicited | | refer clause 14.2.6 | |
| +CEMBMSSRVI | | as verbose | | unsolicited | | refer clause 14.2.3 | |
| +CEN1 | | as verbose | | intermediate  unsolicited | | refer clause 8.67 | |
| +CEN2 | | as verbose | | intermediate  unsolicited | | refer clause 8.67 | |
| +CEN3 | | as verbose | | intermediate  unsolicited | | refer clause 8.67 | |
| +CEN4 | | as verbose | | intermediate  unsolicited | | refer clause 8.67 | |
| +CEPTT | | as verbose | | unsolicited | | refer clause 11.1.10 | |
| +CEPSFBS | | as verbose | | unsolicited | | refer clause 8.81 | |
| +CEREG | | as verbose | | unsolicited | | refer clause 10.1.22 | |
| +CPBW | | as verbose | | intermediate | | refer clause 8.14 | |
| +CPNERU | | as verbose | | unsolicited | | refer clause 8.70 | |
| +CGBRRREP | | as verbose | | unsolicited | | refer clause 10.1.69 | |
| +CGDEL | | as verbose | | intermediate | | refer clause 10.1.29 | |
| +CGEV | | as verbose | | unsolicited | | refer clause 10.1.19 | |
| +CGREG | | as verbose | | unsolicited | | refer clause 10.1.20 | |
| +CHSR | | as verbose | | intermediate | | refer clause 6.16 | |
| +CIEV | | as verbose | | unsolicited | | refer clause 8.10 | |
| +CCIOTOPTI | | as verbose | | unsolicited | | refer clause 7.42 | |
| +CIREGU | | as verbose | | unsolicited | | refer clause 8.71 | |
| +CIREPH | | as verbose | | unsolicited | | refer clause 8.64 | |
| +CIREPI | | as verbose | | unsolicited | | refer clause 8.64 | |
| +CKEV | | as verbose | | unsolicited | | refer clause 8.10 | |
| +CLADNU | | as verbose | | unsolicited | | refer clause 10.1.61 | |
| +CLAV | | as verbose | | unsolicited | | refer clause 8.31 | |
| +CLIP | | as verbose | | unsolicited | | refer clause 7.6 | |
| +CMCCSI | | as verbose | | unsolicited | | refer clause 8.73 | |
| +CMCCSS<x> | | as verbose | | unsolicited | | refer clause 8.73 | |
| +CMCCSSEND | | as verbose | | unsolicited | | refer clause 8.73 | |
| +CME ERROR | | as verbose | | final | | refer clause 9.2.0 | |
| +CMICO | | as verbose | | unsolicited | | refer clause 10.1.55 | |
| +CMOLRE | | as verbose | | unsolicited | | refer clause 9.3.1 | |
| +CMOLRG | | as verbose | | unsolicited | | refer clause 8.50 | |
| +CMOLRN | | as verbose | | unsolicited | | refer clause 8.50 | |
| +CMTLR | | as verbose | | unsolicited | | refer clause 8.57 | |
| +CRTDCP | | as verbose | | unsolicited | | refer clause 10.1.44 | |
| +CMWN | | as verbose | | unsolicited | | refer clause 7.36 | |
| +CNAP | | as verbose | | intermediate  unsolicited | | refer clause 7.30 | |
| +CNEC\_MM | | as verbose | | unsolicited | | refer clause 9.1b | |
| +CNEC\_GMM | | as verbose | | unsolicited | | refer clause 9.1b | |
| +CNEC\_GSM | | as verbose | | unsolicited | | refer clause 9.1b | |
| +CNEC\_EMM | | as verbose | | unsolicited | | refer clause 9.1b | |
| +CNEC\_ESM | | as verbose | | unsolicited | | refer clause 9.1b | |
| +CNEMIU | | as verbose | | unsolicited | | refer clause 7.33 | |
| +CNEMS1 | | as verbose | | unsolicited | | refer clause 7.33 | |
| +CNEM5G | | as verbose | | unsolicited | | refer clause 7.33 | |
| +CNRREG | | as verbose | | unsolicited | | refer clause 10.1.47 | |
| +COEV | | as verbose | | unsolicited | | refer clause 8.10 | |
| +COLP | | as verbose | | intermediate  unsolicited | | refer clause 7.8 | |
| +CPAGTCC | | as verbose | | unsolicited | | refer clause 10.1.X | |
| +CPAGERES | | as verbose | | unsolicited | | refer clause 10.1.78 | |
| +CPINR | | as verbose | | intermediate | | refer clause 8.65 | |
| +CPINRE | | as verbose | | intermediate | | refer clause 8.65 | |
| +CPOSR | | as verbose | | unsolicited | | refer clause 8.56 | |
| +CPNERU | | as verbose | | unsolicited | | refer clause 8.70 | |
| +CPNSTAT | | as verbose | | unsolicited | | refer clause 7.28 | |
| +CPSB | | as verbose | | unsolicited | | refer clause 7.29 | |
| +CR | | as verbose | | intermediate | | refer clause 6.9 | |
| +CREG | | as verbose | | unsolicited | | refer clause 7.2 | |
| +CREJPAG | | as verbose | | unsolicited | | refer clause 10.1.77 | |
| +CRING | | as verbose | | unsolicited | | refer clause 6.11 | |
| +CRLOSPU | | as verbose | | unsolicited | | refer clause 10.1.65 | |
| +CRTDCP | | as verbose | | unsolicited | | refer clause 10.1.44 | |
| +CRUEPOLICYU | | as verbose | | unsolicited | | refer clause 10.1.51 | |
| +CSBTSRI | | as verbose | | unsolicited | | refer clause 10.1.56 | |
| +CSCON | | as verbose | | unsolicited | | refer clause 10.1.30 | |
| +CSDBTSRI | | as verbose | | unsolicited | | refer clause 10.1.58 | |
| +CSSI | | as verbose | | intermediate | | refer clause 7.17 | |
| +CSSU | | as verbose | | unsolicited | | refer clause 7.17 | |
| +CTEV | | as verbose | | unsolicited | | refer clause 8.10 | |
| +CTZE | | as verbose | | unsolicited | | refer clause 8.41 | |
| +CTZEU | | as verbose | | unsolicited | | refer clause 8.41 | |
| +CTZV | | as verbose | | unsolicited | | refer clause 8.41 | |
| +CUSATEND | | as verbose | | unsolicited | | refer clause 12.2.4 | |
| +CUSATP | | as verbose | | unsolicited | | refer clause 12.2.4 | |
| +CUSATS | | as verbose | | unsolicited | | refer clause 12.2.3 | |
| +CUSD | | as verbose | | unsolicited | | refer clause 7.15 | |
| +CUUS1I | | as verbose | | intermediate | | refer clause 7.26 | |
| +CUUS1U | | as verbose | | unsolicited | | refer clause 7.26 | |
| +CWLANOLADI | | as verbose | | unsolicited | | refer clause 10.1.39 | |
| +CWLANOLCMI | | as verbose | | unsolicited | | refer clause 10.1.40 | |
| +DR | | as verbose | | intermediate | | refer clause 6.26 | |
| +ILRR | | as verbose | | intermediate | | refer clause 4.3 | |
| BUSY | | 7 | | final | | busy signal detected | |
| CONNECT | | 1 | | intermediate | | connection has been established | |
| CONNECT <text> | | manufacturer specific | | intermediate | | as CONNECT but manufacturer specific <text> gives additional information (e.g. connection data rate) | |
| ERROR | | 4 | | final | | command not accepted | |
| NO ANSWER | | 8 | | final | | connection completion timeout | |
| NO CARRIER | | 3 | | final | | connection terminated | |
| NO DIALTONE | | 6 | | final | | no dialtone detected | |
| OK | | 0 | | final | | acknowledges execution of a command line | |
| RING | | 2 | | unsolicited | | incoming call signal from network | |
| NOTE: From v6.2.0 onwards, ATV0 numeric result codes 5, 6, 7 for NO DIALTONE, BUSY and NO ANSWER respectively, have been replaced by numeric result codes 6, 7, 8 respectively, to be aligned with the values listed in ITU-T Recommendation V.250 [14] (previously V.25ter). | | | | | | | |

NOTE: The table B.1 is as an overview of the result codes, hence the complete syntax of the result codes is not shown.

\*\*\* end of change \*\*\*